CHAPTER - II
REVIEW OF RELATED LITERATURE

A study of relevant literature is an essential step to get a full picture of what has been done with regards to the problem under study.

The investigator has made an honest and sincere attempt to locate the similar studies made by various scholars, through internet, textbooks, magazine, journals, research quarterlies and dissertation abstracts. Such collected references have been presented in logical order of importance and sequence of merit in this chapter.

LITERATURES ON VOLLEYBALL SKILL TEST

2.1. BRADY VOLLEYBALL SKILL TEST

Brady (1945) constructed a repeated volleys test as a measure of general volleyball playing for college men.

In this test a simple target is marked on a wall. A 5 feet long horizontal line, 111/2 feet from the floor is marked on a smooth side of a wall. Vertical lines are extended upward towards the ceiling at the ends of the horizontal line. Subject stands where he wishes and throw the ball against the wall. He then volleys it with the wall as many times as possible in one minute. Only legal volleys are counted i.e. they must be volleys not thrown balls and must hit the wall within the boundaries of the target.
In this test 522 college men and 15 YMCA expert players were used. A reliability coefficient of 0.93 was calculated between repeated tests by the subjects during the same testing period. For validity a coefficient of 0.86 is repeated between the scores on the tests and the combined subjective judgment of four qualified observers.

2.2. RUSSELL AND LANGE VOLLEYBALL SKILL TEST

Russell and Lange (1940) worked with achievement tests for junior high school girls. They selected the repeated volleys test and the serve test from the French and Cooper battery. The volleys test was modified to involve three trials of 30 sec each at the 3 ft restraining line. The reliability computed on two trials and 0.90 for the sum of three trials. Seven judges used a four point scale from excellent to poor in the validity studies. They rated 66 players during a tournament play. The validity correlations ranged from 0.61 to 0.67, but when corrected for attenuation and random errors were 0.63 to 0.80.

2.3. GLADY’S SCOTT AND ESTHER FRENCH’S VOLLEYBALL TEST

Glady’s Scott and Esther French’s constructed service placement test. To measure the serving ability with which a player can serve a ball against the target area. Three Volleyballs, net, measuring tape, chalk
powder, scoring sheet and a standard volleyball court. A ten minute warm-up period was permitted. The subject was standing behind the end line in the service area with a volleyball and serve into the marked court over the net as shown in the figure. 5. The ball should be hit or bat over the net fulfilling the service rules. The foot faults, the ball served out of the target area were scored as zero. The score was in the point value of the target area in which the ball was served. Each member was given three trials consisting of ten services. The test score was the sum of scores of the ten services served in each trial. The validity 0.61 and the reliability 0.894 obtained for Glady's Scott and Esther Service placement skill test.

2.4. KRONQVIST AND BRUMBACK VOLLEYBALL TEST

Kronqvist and Brumback (1968) modified the volley ball skill test for high school boys. With a view to determine the suitability of a rebound, wall volley test as a technique for evaluating the volleyball playing ability of high school boys.

The data for this study were obtained by testing boys in grade 10 and 11 at West Vancouver senior high school, in West Vancouver, British Columbia. The final portion of the study involved 71 subjects.

The final form of the test consisted of three 20 sec trials of repetitive volleying a volleyball against a rebound wall upon which a
target area was marked. The target area had a 5 ft line, 11 ft from the floor. From both ends of this line, lines extended toward the ceiling for at least 4 ft. There were no restraining lines on the floor.

The Pearson Product Moment Method of correlation was used to determine the validity of the test. This was performed by correlating each student's total score of the judges playing ability rating with the sum of the scores of the best two, out of three trials which he had made on the retest.

In order to determine the objectivity of the judge's rating, coefficients of correlation were calculated in which each judge's total score for each player was compared with the score given by his colleagues.

The reliability of the test was determined by the test-retest technique for each of the three classes and for the 71 subjects treated as one group. The last two out of the three trials were used as the subject's score. The coefficient of correlation was obtained by using the Pearson Product Moment Method.

Recognizing the weaknesses inherent in any relatively simple test which might be used to evaluate sports playing ability, it appears that the
wall volleying technique can be used as a basis to assist an instructor to
determine the volleyball playing ability of high school boys.

While the devise test did not prove to be as valid and reliable as
was anticipated, it does appear that test may be of enough value to
warrant further investigation and use.

For validity, a correlation coefficient of 0.78 was obtained between
the test and ratings of volleyball ability by three experienced judges using
a ration scale; the test-retest reliability coefficient was 0.89.

2.5. GABBETT AND GEORGIEFF VOLLEYBALL SKILL TEST

Gabbett and Georgieff (2006) conducted a study to develop a skill
assessment for junior volleyball players and to evaluate the reliability,
validity, and sensitivity of the test for detecting training-induced
improvements in skill. METHODS: Thirty junior volleyball players
(mean +/- SD age, 15.5 +/- 1.0 years) participated in this study. Subjects
performed tests of spiking, setting, serving, and passing skills on 2
separate occasions to determine test-retest reliability of accuracy. Two
expert coaches evaluated the players' technique and reevaluated it 1
month after the initial evaluation to determine the intra tester reliability
for technique measurements. A third expert coach determined the inter
tester reliability for technique measurements. The validity of the test to
discriminate players of different playing abilities was evaluated by testing junior national, state, and novice volleyball players. Finally, each player participated in an 8-week skill-based training program. RESULTS: Accuracy measurements and intra tester and inter tester ratings of players' technique proved to be highly reproducible (intra class correlation coefficient, r, .85 to .98, range of typical error of measurement 0.2% to 10.0%). A progressive improvement in skill was observed with increases in playing level, while training-induced improvements were present in all skill tasks. CONCLUSIONS: These results demonstrate that skill-based testing offers a reliable method of quantifying development and progress in junior volleyball players. In addition, the skill-testing battery was useful in successfully discriminating playing ability among junior volleyball players of varying levels, and it was sensitive to changes in skill with training. These findings demonstrate that skill-based testing is useful for monitoring the development of junior volleyball players.

2.6. BASCARAN VOLLEYBALL SKILL TEST

Bascaran (2001) conducted a research on construction of volleyball skill test and computation of norms for school boys of different age groups in pondicherry state. For this purpose 4515 boys were selected ranging from the age group of 13, 14 and 15 years. It was hypothesized that the newly constructed test might not be reliable valid.
For establishing reliability and validity of the newly constructed test the scores of the constructed test were correlated with the scores of the existing valid and reliable test that measured the same trait. The two criterion test selected were Brumbach Fore Arm Pass Wall volley Test and Glady’s Scoot and Esther French’s Service Placement Test. The test scores were correlated by applying the Pearson Product Moment correlation and intra class correlation method. He has obtained a reliability coefficient of different age groups ranging from 0.75 to 0.99 which were highly significant and a validity coefficient ranging from 0.90 to 0.95 which shows a high validity. He had also constructed a norm scale by using Hull Scale.

2.7. FRENCH COOPER VOLLEYBALL TEST

French Cooper (1959) developed a test to assess the ability of the repeated underhand pass of the players and discussed it elaborately. The main purpose of the test was to measure the ability of the volleyball players in the upper hand pass. The equipments were volleyballs, unobstructed wall space of ten foot long and fifteen foot high and a stopwatch. A five inch line for ten foot long should be marked on the wall at a height of seven and half feet from the floor which is equivalent to the net height. A line with 5 inch thickness should be drawn on the floor opposite to the wall for ten foot long and three feet from the base of the wall.
The player was asked to stand behind the three foot line drawn on the floor and tosses the ball the wall with underhand movement. When the ball bounces back he should volley it repeatedly against the wall above the ten foot line drawn at a height of the net line for a period of fifteen seconds. The ball may volleyed by underhand as many times as designed within the testing period. It may be caught and restarted with a toss as of the beginning. If the ball goes out of control it must be recovered by the subject and to be restarted again from behind the three foot line. This procedure should be repeated until ten trials have been completed each for fifteen seconds in length.

If score for one trial is the number of times that the ball is clearly batted (not tossed) from behind the three foot line on the floor to the wall above or on the net line. The score for the test is the sum of the five best of trials out of ten trials. R=0.78 correlated by the odd-even method. It was not correlated by the Spearman – Brown formula since only five of the trials are used in the final score. Reliability computed from the five best of trials on successive days should yield on equally high, perhaps higher coefficient for this test. Forty seven senior high school girls were selected from the University High School IOWA cited for this test. IOWA r=0.82 was computed by the odd-even method for the first four trials by 234 University of IOWA women.
2.8. FRENCH AND COOPER VOLLEYBALL SKILL TEST

French and cooper (1937) did achievement tests in volleyball for high school girls. The researchers described about four tests in this study. Test First – Repeated volley, Test 2\textsuperscript{nd}-serving test, Test 3\textsuperscript{rd}–set-up and pass and test 4\textsuperscript{th}-recovery from the net. The subjects for this study were unselected groups of 227 high school girls, group A consisted 47 girls of the tenth, eleventh and twelfth grades and group B of 180 girls of the ninth and tenth grades and concluded that, (1) the best combination of measures for practice purpose appears to be the serving test with the repeated volleys. This combination gives a higher degree of correlation with the criterion that does either item alone. The two tests measure quite different things. This combination is easy to administer since the repeated volleys test may be given along the walls while the serving test may be given on the court itself, if the floor space is large enough to permit administering and scoring both at the same time.

Because of simplicity of administering and scoring and the economy in time and equipment, these tests may be recommended as teaching devices as well as tests for classifying and diagnosing.

Criteria: For our criteria it was decided to use ratings of playing ability in the actual game situation. Before any tests were given these ratings were made by four trained judges.
The reliability of the ratings was computed by correlating the sum of the ratings of two judges against the sum of the rating of the other two for each subject. In group A the correlation was 0.8814 which became 0.9375 when corrected by the Spearman Brown prophecy formula. In Group B, the correlation was 0.9141 and the corrected reliability is sufficiently high to warrant a feeling of confidence in the validity of the ratings.

2.9. SHEPPARD VOLLEYBALL SKILL TEST

Sheppard and others (2007 conducted a study to develop a repeated-effort test for international men's volleyball. The test involved jumping and movement activity that was specific to volleyball, using durations and rest periods that replicated the demands of a match. METHODS: A time-motion analysis was performed on a national team and development national team during international matches to determine the demands of competition and thereby form the basis of the rationale in designing the repeated-effort test. An evaluation of the test for reliability and validity in discriminating between elite and sub-elite players was performed. RESULTS: The test jump height and movement-speed test parameters were highly reliable, with findings of high intra class correlations (ICCs) and low typical errors of measurement (TE; ICC .93 to .95 and %TE 0.54 to 2.44). The national team's ideal and actual jump height and ideal and actual speeds, mean +/- SD, were 336.88 +/- 8.31
cm, 329.91 +/- 6.70 cm, 6.83 +/- 0.34 s, and 7.14 +/- 0.34 s, respectively. The development national team's ideal and actual jump heights and ideal and actual speeds were 330.88 +/- 9.09 cm, 323.80 +/- 7.74 cm, 7.41 +/- 0.56 s, and 7.66 +/- 0.56 s, respectively. Probabilities of differences between groups for ideal jump, actual jump, ideal time, and actual time were 82%, 95%, 92%, and 96%, respectively, with a Cohen effect-size statistic supporting large magnitudes (0.69, 0.84, 1.34, and 1.13, respectively). Conclusion: The results of this study demonstrate that the developed test offers a reliable and valid method of assessing repeated-effort ability in volleyball players.

2.10. CROGEN VOLLEYBALL SKILL TEST

In 1943, Crogen reported a repeated volleys test for high school girls. The players started behind a 6 ft restraining line but could move anywhere thereafter. The time factor was excluded. The reliability with 129 girls ranged from 0.48 to 0.52 for ten hits. The same girls were re-tested with 20 hits instead of ten; the reliability then went up to 0.83. Instead of basing the validity of the test on judge’s rating as cited in other studies, Crogen based the validity on the ability to play volleyball in a competitive situation. It was found that teams made up of players with higher test scores won more games than those with lower test scores, thus indicating the validity of the test.
2.11. FULTON VOLLEYBALL SKILL TEST

Fulton (1950) found that team mate’s status was as closely related to teacher judgment of skill in volleyball as were the scores on the French and Cooper repeated volleys test. The volleys test scores correlated 0.71 with ratings of skill made by the teachers and 0.54 with the score of team mate status. Scores of team mate status correlated 0.71 with the rating of skill by the teacher.

2.12. LAMP VOLLEYBALL SKILL TEST

Lamp (1954) described volleyball skills of junior high school students as a function of physical size maturity. The purpose of this study was to investigate the relationship between (a) the factors of chronological age, physiological age, height, weight and grip strength and (b) the volleyball playing ability of junior high school students as determined by a battery of tests of fundamental volleyball skills.

It seems reasonable to believe that chronological age is related to playing ability, since at the junior high school period, the majority of physical skills do improve with age. The investigator came to the following conclusions:

(i) The volleyball tests are reasonably objective as evidenced by the correlation coefficients of the order of 0.7.
(ii) The tests are as reliable as those used by other investigators or volleyball skills. Correlation of coefficients of the order of 0.6 were obtained.

(iii) The tests are valid as indicated by the correlation coefficient with total scores of the order of 0.9 for the girls and 0.7 for the boys.

(iv) There is no significant difference between boys and girls in their ability at this age to perform the skills of volleyball as evidenced by the very small critical ratios comparing the scores made by the boys with those made by the girls.

(v) Age and weight are more closely related for girls than for boys in performance in volleyball skills.

(vi) Height is more important than the other factors concerned with boys in relation to volleyball skill tests.

(vii) For boys and girls there is a slight sensitive relationship between strength and volleyball playing ability.

(viii) A comparison of scores on pubescent status indicates that there is a decided relationship between these factors for junior high school boys. The more mature boy at each chronological age, scores higher than the less mature boys. For the girls all pubescent groups show an early increase in performance with age and in all groups the maximum increase appears to come between 12.75 and 13.25 years. Peak scores for the pubescent and post-pubescent groups appear to come in the 14th year.
2.13. THIRUMURUGAN VOLLEYBALL TEST

Thirumurugan (1991) had conducted a study on the construction of service test in volleyball for the Higher Secondary and High School Boys in Tamil Nadu. One thousand male students in the age group of 12 to 18 years were selected as subjects for this study. The criterion test score in two forms namely the average of trials and the best of trials (ACT and BCT) were correlated with the equivalent form of new test (ANT and BNT) by using the Pearson Product Moment Correlation. The average and best in each group achieved a coefficient ranged from 0.748 to 0.956. He obtained a coefficient of reliability for the total sample was 0.96 and the coefficient of validity for the total sample was 0.911.

2.14. BALA KUMARARAJA VOLLEYBALL TEST

Bala Kumararaja (1990) constructed a test of forearm pass wall volley in volleyball for High and Higher Secondary School girls in Tamil Nadu. For this study he has selected thousand female students as subjects. For this study forearm pass was taken into consideration for the construction. He had established a validity 0.80 and a reliability r=0.896. This shows the new constructed test was better than the criterion test which is already in use.
2.15. JOHNSON VOLLEYBALL TEST

Johnson (1968) had developed a six trials overhead volley test, which was administered to hundred school girls. A reliability coefficient of 0.93 was obtained and was validated against two criteria, one was judges rating and the other was French Cooper repeated wall volley test. When correlated with a criterion of subjective ratings, the validity coefficient of Johnson overhead volley test was found to be 0.74 when correlated with the French-Cooper test. The validity coefficient was found to be 0.68. All correlations were found to the significant at the 0.01 level.

2.16. JOHN VOLLEYBALL SKILL TEST

John (1980) conducted a study on an evaluation of objective skill test in volleyball. The purpose of the study was to evaluate objective skill test in the game. He took two tests for evaluation purpose. One was Brady Volleyball test and the second AAPHER volleyball test. He selected 40 volleyball players from different colleges affiliated to Jiwaji University as test subjects for this study and for computation of norms for Bachelor of Physical Education students. Total 72 students, who had undergone general course in Volleyball were taken to this study. For computing reliability coefficient 15 subjects were selected at random and test were repeated on two days in between. The reliability of coefficient obtained in both the tests significant at 0.01 level of confidence. The tests were validated by correlating performance in tests to the rating of three
experts. The validity coefficient obtained were found to be significant at 0.01 level of confidence.

2.17. CUNNINGHAM AND HARRISON VOLLEYBALL TEST

Cunningham and Harrison (1968) had conducted a study to measure the volleyball playing ability of college women and tried to obtain a valid and reliable test for measuring this ability. For this purpose he had chosen the Liba and Stauff passing test and the newly constructed high wall volley test with a target of three foot wide and ten feet from the floor without any restraining line. The newly constructed test was found reliable and valid when the better of two second trials were used. The validity of the new test to measure the volleyball playing ability was significantly greater than that for Liba and Stauff passing test. The judges rating were inter correlated with 0.89, 0.83 and 0.87 and totaled to serve as the validity criterion. The new test correlated 0.72 with the criterion and has a reliability of coefficient of 0.87 correlating and was found so significantly higher than the passing test.

2.18. CUMMISKY VOLLEYBALL SKILL TEST

Cummisky (1962) constructed modified the Brady's test for boys. The wall line of 5 feet long placed on the wall 44 feet above the floor both ends of this line extend toward the ceiling for at least 4 feet. No restraining lines on the floor. The test was constructed to measure general Volleyball playing ability. Well inflated Volleyballs, unobstructed wall
space of 10 feet long and 15 feet high and a stopwatch. The player is asked to make a maximum number of volleys standing at any point in front of the target for 30 seconds. The subject tosses the ball to the wall. When the ball bounces back he should volley it repeatedly against the wall for 30 seconds. If the ball goes out of control it must be recovered by the subject and to be restarted. This procedure should be repeated until three 20 seconds trials. The Validity coefficient was 0.70 and the Reliability coefficient was 0.83.

2.19. BOVARD VOLLEYBALL SKILL TEST

Bovard and others (1950) conducted the skill test in volleyball at university of Wisconsin in their book. They conducted extensive studies on the validity and reliability of various types of skill in volleyball. They finally suggested two tests, a serving test one to measure the force of a serve, the other was the placement of serve and the ability to get the ball crossing the net. The volleying test designed to measure the reaction time in passing and receiving and accuracy of placements. A composite rating by three judges were used as a validating criterion. A coefficient of 0.79 for serving test and 0.51 for the volleying test were reported. Reliability coefficients of 0.84 and 0.89 were found for the serving test and volleying test respectively.
2.20. MOHR AND HARVERSTIC VOLLEYBALL SKILL TEST

Mohr and Harverstick (1955) evaluated one hundred and ten women students of freshman and Sophomore University who were given repeated volleys test in volleyball. Since the Russell Lange 3 ft repeated volleys test has been established as reliable and valid, the purpose of this study was to investigate the reliability and validity of the same test when performed 3, 5 and 7 ft from the wall. One hundred and ten women students at the University of Maryland participated in the study. Women majority in physical education as well as general education students from volleyball classes were tested during the academic year 1953-1954. The following conclusions were significantly made by the investigator: With the subjects used in the study, it was found that reliability of the repeated volleys test was almost the same at the 3, 5 and 7 ft lines. The predicted reliability for three trials was 0.93 or 0.94 which was somewhat higher than any of the reliabilities quoted by the previous studies using girls and women as subjects.

The validity found in this study was also higher than most of those quoted in previous studies with girls and women. Both the obtained validity for the trials at the 7 ft line were significantly greater than those at the 3 ft line respectively.
The estimated validity for three trials at the 7 ft line was also significantly greater than the validity for the sum of scores at the 3, 5 and 7 ft lines.

On the basis of these findings and from watching many students perform these tests and authors intended to revise their test to include three trials at the 7 ft line and eliminate the 3 and 5 ft distance.

2.21. GILL VOLLEYBALL SKILL TEST

Gill (1976) conducted a study on 30 students of shri singh sabha higher secondary school, patiala of age between 13 to 16. The skill tests included serve test, smash (spike) test, repeated volleys test and physical performance, tests of push ups, squat test, straddle test and vertical jump test. He concluded that skill tests and the motor fitness tests had a significant relationship.

2.22. LIBA AND STAUFF VOLLEYBALL SKILL TEST

Liba and Stauff (1963) conducted a study to develop a best for the overhead pass in volleyball, administered the test to college women and a similar test slightly modified to junior high school girls. They defined desired height and horizontal distance and used ropes and floor target for assessment. Reliability was determined by analysis of variance procedures. Reliability estimates for 5, 10 and 20 trials administered on
one day or more days were presented. The test is claimed to measure certain defined aspects of volleyball pass and therefore, had local validity.

2.23. CLIFTON VOLLEYBALL SKILL TEST

Clifton (1962) developed a single hit volley test to evaluate the volleying ability of college women students in volley pass. The highest validity coefficients were at the 7 feet line for trial I and the sum of trials I and II with no significant difference found between these validity coefficients. A sufficiently high reliability coefficient of 0.83 was found for the sum of trials I and II at the 7 feet line and when compared with reliability coefficients of 0.67 for trial I at the 7 feet line was found to be significantly higher.

2.24. BASSETT, GLASSOW AND LOCKE VOLLEYBALL SKILL TEST

Bassett, Glassow and Locke (1937) conducted a survey of volleyball skill tests. In this study, the authors gave no evidence of the reliability of their tests, only that of validity. Therefore, the instructor, who uses available tests to grade and classify his pupils, has no assurance as to whether they are a true measure of pupil’s ability. They are, however, valuable to the person who is interested in experimentation with testing, and suggest a starting point for the formation of volleyball skill tests.
The techniques required for playing volleyball can be classified into three general divisions. These are, “Serving”, “Defence” and “Attack” plays.

**Serving Tests:**

The tests on serving, 17 in number, range from a test which calls merely for the ball to be served across the net to a test for hitting a basketball hung from a chain above the net. In the majority of the tests the court is divided into areas and the test calls for definite placement of the ball certain area of placement scoring higher than the other. In general, balls landing in the back area of the court are given a higher score than landing in the front part of the court. Three things are necessary for the execution of a good serve: getting the ball across the net, placing the ball, and putting speed or force into the serve. All of the tests on serving, meet the first objective. The idea of placement is attempted in most of the tests, either by dividing the court into areas or by having definite objects to hit. The speed or force of the ball is measured by scoring the back area of the court higher than the front.
Tests for Defence Play

(i) Set-up tests: A test of the set-up should measure the ability to place the ball and to give it height. Two of the tests described measure only the ability to get the ball into the air. The other three test the ability to place the ball as well as get height. Height is measured by comparison with the net or by ropes or frames hung over the playing field; placing is checked by divisions on the court or by a definite target.

(ii) Test for receiving and passing the ball: These tests should measure the ability of players to take the speed off the ball and to place the ball. The object of the test is to pass the ball, received from overhead in the rear part of the court over string ten ft high, to the front part of the court. Points are scored according to the sections of the court in which the ball lands.

(iii) Tests for playing the ball out of the net: Playing the ball out of the net involves speed of reaction, the ability to play a low ball up and back and placement, speed of reaction is involved in the ability to meet and place the ball coming out of the net.

Tests for the Attack Play

(i) Receiving and returning the ball across the net: Placement of the ball and power behind the placement are the main abilities involved in returning the ball.
(ii) Killing the ball: There is only one test described on killing the ball. In this test the receiver stands close to the net and the tosser to one side. Only balls which are close to the net and high are considered good tosses. The receiver kills the ball down over the net into the designated area in the opponent's court. The element of killing the ball combines placement, speed and ability of the player to get up off the floor and over the top of the ball. The test described stresses placement and includes the other two in "killing" the ball straight down over the net.

Inspection of the material on volleyball skill tests reveals that the number of serving tests out numbers the tests of the other elements of the game. Either serving is thought to be the most important element of the same or serving tests can be administered more easily than the other tests. There are 17 serving tests; 11 tests of the defensive play of which three are for playing the ball out of the net, three for receiving and passing the ball and five for setting up the ball; nine tests for the attack play of which one test is for 'killing' the ball, one for repeated volleys against the wall and seven for playing the ball across the net.

In general, it can be said that the serving tests are objective because the test elements are constant a certain reliability might be expected in the serving test if sufficient number of trails are given. In the other tests, for
the most part, another player is involved in addition to the one taking the test. This second player is used to send the ball to the person taking the test. No uniform speed or height can be depended upon on receipt of the ball by the person taking the test, and for this reason possibilities of reliability would not be great. In the two controlled tests, described by Laveaga (1933) reliability, as far as constant factors are concerned, is present because the ball comes from a constant height with a constant speed.

2.26. ANISETTY KRISHANVENI VOLLEYBALL TEST

Anisetty krishanveni (2008) has constructed a new skill test in service and underarm pass in volleyball and established the reliability, validity and constructed the norms for the college women volleyball players. To establish the validity and, reliability and norms 100, 30 and 1000 volleyball college women players were selected respectively. Further to establish validity, reliability and norms, Pearson Product Moment Correlation, two-way inter class correlation and Hull scale statistical techniques were employed. In the study the service placement test I and underarm pass test I were selected as most appropriate test items. The reliability co-efficient on most appropriate test items ‘r’ value ranged from 0.9992 to 0.9994 and it was found that validity between criterion test and newly constructed test ‘r’ ranged from 0.9932 to 0.9980.
2.27. EBENIZER VOLLEYBALL SKILL TEST

Ebenizer (2009) conducted a research on construction of volleyball skill test and compilation of norms for college men volleyball players of Tamilnadu. For establishing validity, reliability and norms 100, 10 and 500 volleyball college men players are selected respectively. Further to establish validity, reliability and norms, Pearson Product Moment Correlation, two-way inter class correlation and Hull scale statistical techniques were employed. The test items of this study were service placement and under arm skills. The reliability co-efficient on most appropriate test items ‘r’ value ranged from 0.9968 to 0.9987 and it was found that validity between criterion test and newly constructed test ‘r’ ranged from 0.8156 to 0.8473.

LITERATURES ON VOLLEYBALL NORMS
2.28. SAMINBARAJ VOLLEYBALL NORMS CONSTRUCTION

Saminbaraj (1996) conducted a study an construction of norm for agility coordination test for high school volleyball players (boys). Three hundred players were selected as subjects at random from three districts in Tamilnadu for the study. The data collected from 300 subjects were converted into the hull scale norm score. As per the qualitative grading for the constructed norms in agility coordination test 35 subjects were poor, 68 subjects were fair, 100 subjects were average, 100 subjects were average, 66 subjects were good, 23 subjects were very good and 8 subjects were found to be excellent.
2.29. NATARAJAN DURAIKANNAN VOLLEYBALL NORMS CONSTRUCTION

Natarajan Duraikannan (1998) conducted a study on construction of norm for selected fundamental skills and physical parameters of volleyball attackers (boys). One hundred boys volleyball attackers were selected at random from various schools in Dindigul district, Tamil Nadu as subjects. Selected fundamental skills and physical parameters were taken as the variable. Mean and standard deviation were used as the statistical technique. Hull scale was used to construct the norms. Qualitative grading for the constructed norms of the variables gave the following results. As per the qualitative grading of fundamental skills 4 subjects were excellent in serving, 7 subjects were excellent in passing, 4 subjects were excellent in setting, 9 subjects were excellent in spiking, 3 subjects were excellent in Blocking. As per the qualitative grading of physical variable 4 subjects were excellent in power 3 subjects were excellent in arm strength and flexibility 2 subjects were excellent in endurance.

2.30. PICHAIAPPA VOLLEYBALL NORMS CONSTRUCTION

Pichaiappa (1999) constructed norms for the predicted fundamental volleyball skills of Tamil Nadu School Boys at different age level.
To achieve this purpose 100 volleyball players in each age group were selected as subjects for the prediction of the fundamental skills. Underhand pass, overhead pass, service, setting, spiking, block were selected as independent variables, the dependent variable was the volleyball playing ability. All the skills were measured using standardized test, the block and playing ability were assessed by subjective rating by a panel of three judges. To choose the minimum number of independent variables in the order of contribution Wherry Doolittle method of variable selection was used.

When the multiple correlation computed four different fundamental volleyball skills in each age group were predicted. In the construction of norm 2000 volleyball players were selected as subjects for each age groups. The Helmen volleyball test was used to test the overhead and underhand pass skill, Russel lange volleyball service test was used for serving skill, was spike test by Harold and McGee AAPHER volley ball set up test was used to measure the skill Blocking was measured by the judges ratings. The collected data were statistically analyzed for computing mean, standard deviation and hull scale value. Then the norms were constructed for the predicted fundamental volleyball skill for each age groups.
Among the skill variables service and underhand pass were found to be significantly related with playing ability for all the age groups. Spiking with 16 and 17 years. Setting with 16 and 18 years overhead pass and blocking in the 17 and 18 years.

The Hull scale norms on the performance of service, underhand pass, setting and spiking shows out of 2000 subjects in all the selected variable can be identified according to their index in the norm table such as failing category below average, average, good and outstanding category.

2.31. PUGALENTHI VOLLEYBALL NORMS CONSTRUCTION

Pugalenthi (1991) conducted a study on “Construction of norms for the skills in volleyball among school boys in trichy district”. He selected 250 students aged between thirteen and fifteen years from various schools of Tamil nadu. Russel Lange and repeated volley test was used to compute the norms. T-scale was used as a statistical technique. The results showed that as the whole, the performance of students were above average.
2.32. THANGAVEL NATTAR PICHAIAPPA VOLLEYBALL SKILL TEST AND NORMS

Thangavel nattar pichaiappa (1999) conducted a test was to construct norms for the predicted fundamental volleyball skills for each age group separately. To achieve these purpose 2000 volleyball players were selected as subjects for each group. To measure the overhead pass and underpass skill Helmen volleyball test was used. Russel Lange volleyball service test was used to measure the serving skill. Wall spike test by Barrow M. Harold and Rosemary McGee was used to measure the spiking ability. AAHPHER volleyball set up test was used to measure the setting skill and blocking skill was measured by three experts. The data were statistically analyzed for the construction of norms. After computing the mean, standard deviation and hull scale values the norms were constructed for predicted fundamental volleyball skills for each group separately.

In the basis of hull scale norms in the performance of service, underhand pass, setting and spiking for 16 years age groups the following conclusions were drawn.

In service test as per the qualitative grading by the constructed norm it was found that out of 2000 subjects, 75 subjects fell in failing category, 302 were below average, 675 were average, 621 were above average, 312 were good and 15 were outstanding.
In underhand pass test as per the qualitative grading by the constructed norm it was found that out of 2000 subjects, 38 subjects fell in failing category, 399 were below average, 530 were average, 737 were above average, 262 were good and 34 were outstanding.

In setting test as per the qualitative grading by the constructed norm it was found that out of 2000 subjects, 46 subjects fell in failing category, 308 were below average, 624 were average, 661 were above average, 312 were good and 49 were outstanding.

In spiking pass test as per the qualitative grading by the constructed norm it was found that out of 2000 subjects, 16 subjects fell in failing category, 191 were below average, 724 were average, 899 were above average, 165 were good and 05 were outstanding.

In the basis of hull scale norms in the performance of service, underhand pass, setting and spiking for 17 years age groups the following conclusions were drawn.

In service test as per the qualitative grading by the constructed norm it was found that out of 2000 subjects, 45 subjects fell in failing category, 306 were below average, 669 were average, 658 were above average, 264 were good and 58 were outstanding.
In overhead pass test as per the qualitative grading by the constructed norm it was found that out of 2000 subjects, 41 subjects fell in failing category, 332 were below average, 646 were average, 638 were above average, 264 were good and 79 were outstanding.

In underhand pass test as per the qualitative grading by the constructed norm it was found that out of 2000 subjects, 59 subjects fell in failing category, 352 were below average, 480 were average, 770 were above average, 274 were good and 65 were outstanding.

In spiking test as per the qualitative grading by the constructed norm it was found that out of 2000 subjects, 03 subjects fell in failing category, 230 were below average, 806 were average, 618 were above average, 278 were good and 65 were outstanding.

In the basis of hull scale norms in the performance of service, underhand pass, setting and spiking for 18 years age groups the following conclusions were drawn.

In spiking test as per the qualitative grading by the constructed norm it was found that out of 2000 subjects, 55 subjects fell in failing category, 289 were below average, 724 were average, 606 were above average, 303 were good and 23 were outstanding.
In underhand pass test as per the qualitative grading by the constructed norm it was found that out of 2000 subjects, 40 subjects fell in failing category, 362 were below average, 599 were average, 696 were above average, 267 were good and 36 were outstanding.

In setting test as per the qualitative grading by the constructed norm it was found that out of 2000 subjects, 121 subjects fell in failing category, 458 were below average, 810 were average, 465 were above average, 65 were good and 81 were outstanding.

In blocking test as per the qualitative grading by the constructed norm it was found that out of 2000 subjects, 165 subjects fell in failing category, 227 were below average, 673 were average, 795 were above average, 134 were good and 06 were outstanding.

2.33. SUMMARY OF THE LITERATURE

The development of sports skill test had a long and productive history. Skill tests reflect the ability of the pupil to perform in a specified sports such as volleyball, handball or basketball. By knowing the level of ability of a player in a particular sports, it becomes possible to use his ability score for purposes of classification determining progress and marking.
G.F. Brady (1945), M.A. Broer (1958) and Bassett, G., Glasrow, R.B & Locke, M. (1937) were the pioneers in developing the skill test for assessing the fundamental skills in the volleyball. In the present study, studies related to the skill test have been scanned from 1950 to till now. It clearly showed the trend of present study. Further the literatures collected for this study helps to know the merits and demerits of the existing skill tests and helps to construct the new skill test in volleyball.